

Summer 1969  
Volume 2, Number 3

# ROTUNDA

the bulletin of The Royal Ontario Museum







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### *Membership Information:*

The public is invited to join the Royal Ontario Museum and share in its activities. Membership includes free subscription to ROTUNDA; invitations to previews of exhibitions and new galleries; free admission to lectures and certain other activities; ten per cent reduction at Sales Desk; advance information on coming events. Annual Membership is \$15, Family Membership \$25, Life Membership \$200. For further information write: Membership Secretary, Royal Ontario Museum, 100 Queen's Park, Toronto 181, Ontario, or telephone 928-3704.

### *The Cover:*

*Cranes in a moonlit landscape; iron tsuba, 19th century Japanese swordhilt-guard, inlaid with gold, silver and other metals*

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## Spotlight

### *Comments on current and future ROM activities*

The pace of new Museum projects, programmes and activities shows no sign of slackening, even during the Summer months. During July, the first ROM Museumobile takes to the highways of the province. In the first year of its three-year tour, the Museumobile, containing the story of archaeology projects of the ROM, will visit communities in southwestern Ontario. Later it will go to eastern Ontario and in the third year will travel through the northern part of the province.

The Museumobile is a tractor-trailer unit, 72 feet in length and ten feet wide. Originally part of the 1967 Centennial Caravan, the unit has been transformed by Museum staff to describe ROM archaeological work in five areas of the world: Old Jerusalem; Godin Tepe in Iran; Altun Ha in British Honduras; and Hungry Hall and Fort Albany in Ontario. Watch for the ROM Museumobile. It may be visiting your community soon.

Meanwhile, the plaza of the McLaughlin Planetarium has been transformed into a pleas-

ant daytime outdoor cafe. Tables, shaded by colourful yellow and blue ROM-brellas, are circled by comfortable red, blue and yellow chairs. Sandwiches and other simple refreshments are available from a mobile service unit. The Planetarium cafe operates every day, weather permitting. It's just the spot to relax between a tour of the Museum and a show at the Planetarium. Incidentally, the show in the Star Theatre during the summer is called "Some Famous Stars." More details on it and the show that begins in mid-September are in the *Planetarium* section of this issue.

*Craft Dimensions Canada* is the title of an unusual exhibition, opening at the ROM September 23. Museum exhibitions usually are of historical material—but *Craft Dimensions Canada* definitely is of the present. It contains approximately 200 items, all produced by contemporary professional craftsmen across the country. They were selected by a three-member jury from among more than 900 entries submitted by 325 craftsmen. Included are textiles, ceramics, furniture, jewellery, and metal work. The jury also chose 22 for prizes of \$100 each and, as well, each juror picked one item of his personal choice for a \$100 award of excellence. The names of the winners will be announced and the prizes awarded at a special luncheon September 22. That evening, Gerard Pelletier, the federal Secretary of State, is scheduled to officially open the exhibition at a preview for





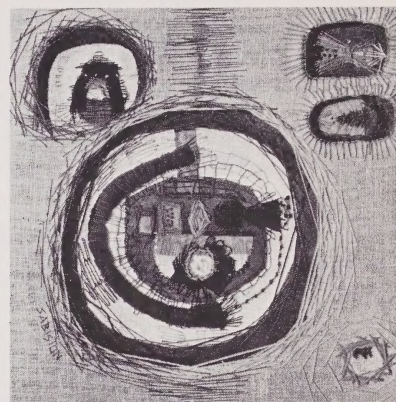
ROM Members. *Craft Dimension Canada* is jointly sponsored by the Canadian Guild of Crafts (Ontario) and the Museum with the assistance of a grant from the Canada Council.

At a recent Sotheby auction in Toronto, the ROM's Canadiana Department made several important purchases (see *The Growing Collections*). Now Sotheby and Company has made its own contribution toward purchases by the Museum. It is a credit of \$1,500 which the ROM may use for purchases at any Sotheby sales room in the world. Peter Swann, the ROM Director, says this sum will be of inestimable value to the Museum in its bidding on treasures offered to collectors by Sotheby.

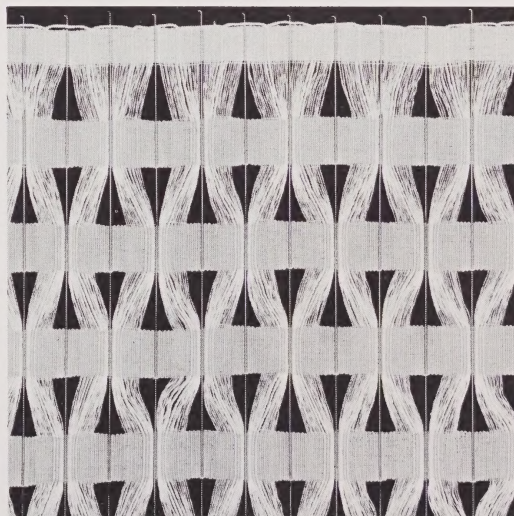
Autumn will be *The ROM Season* in Toronto. Beginning early in September and continuing through November, the Museum will offer a brimming schedule of diverse activities. There will be special days for children in the Museum and at the McLaughlin Planetarium; an exclusive fashion show; the opening of the *Craft Dimensions Canada* exhibition; Collectors' Identification Nights; films, lectures, tours, and —ROMARAMA, '69. The first ROMARAMA, held last year, was a mind-popping success attended by more than 2,600 "swingers." This year's edition, from plans already made, promises to have even more music, entertainment, "names", refreshments, noise and FUN. Plan to attend with your friends.



Jack Sures, Regina  
"Monolith 1", reduced stoneware  
Carole Sabiston, Victoria  
"Inscape", embroidery and fabric collage



Leopold Foulem, Caraquet, N.B. Five vases, stoneware



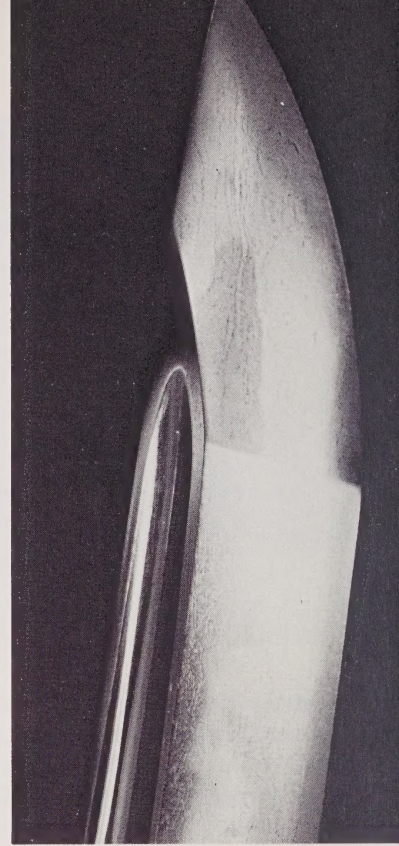
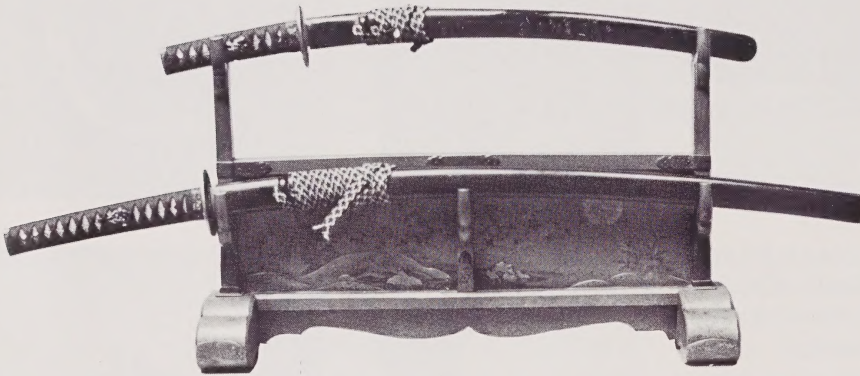
Velta Vilsons, Toronto Screen, wool with steel rods



## by David Pepper

*The point of a 15th-century blade by Sukesada of Bizen province; close-up shows both tempered edge and grain-pattern of the steel. Author's collection*

*An exceptionally fine dai-sho (large-small) pair of swords, mounted on a lacquered sword-stand. ROM collection*



*Samurai wearing kamishimo, formal court dress. His swords are specially mounted for ceremonial wear. 1860's photograph  
Courtesy of the Japanese Canadian Cultural Centre*



*Samurai of the 1860's, in ordinary street dress with his two swords in his sash  
Courtesy of the Japanese Canadian Cultural Centre*







*A samurai in full armour; print by Kuniyoshi, c. 1840, from the collection of Mr. Pat Donald*

## Such a sword

*"Wearing such a sword, one can slay the barbarians"*

Thus wrote an 11th century Chinese poet in praise of the "treasure swords of Japan." The Chinese fully appreciated the unique qualities of Japanese blades which were then, and remain today, the finest ever produced.



Seldom has a weapon so fired men's imaginations, or built around itself such an intricate web of folklore, ritual and mystery. Even today in Japan, exhibitions of art swords draw enormous and appreciative crowds.

In the West, the Japanese sword is little understood except by small, devoted groups of students and collectors. Most foreign works on Japanese art fail even to mention the Japanese sword and the reverence in which it has always been held.

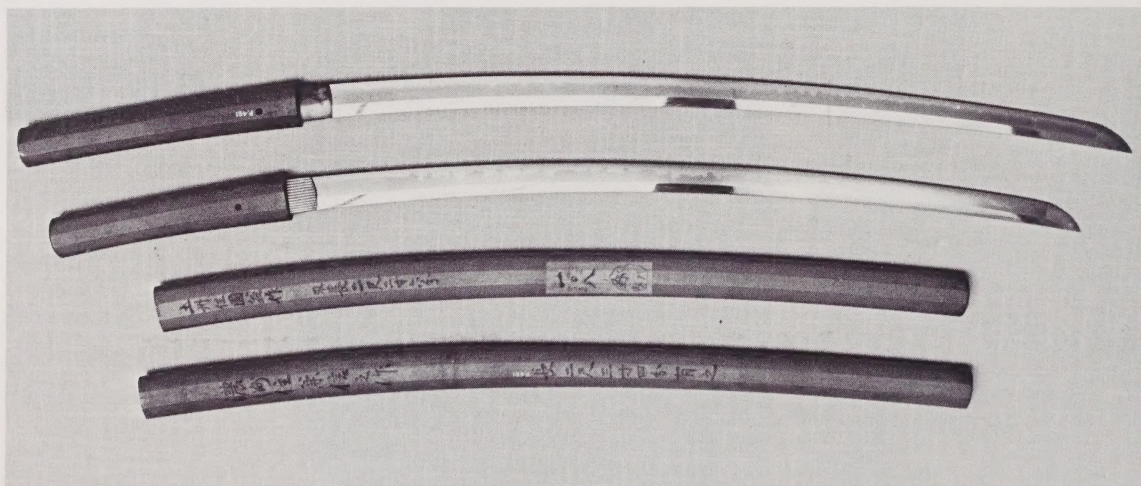
The Royal Ontario Museum possesses the most extensive collection of Japanese arms and armour in Canada and probably one of the largest in North America. Its sword-mounts and more than 80 blades, mounted and unmounted, are particularly fine and would be impossible to obtain today, even with unlimited funds. However, more than 60 of the blades will need thorough restoration before they can be displayed.

Although sword history is shrouded in legend, it is known that prehistoric Japanese used cast bronze swords, much like those of Bronze Age Europe. In the first six centuries of the Christian era, smiths from China and Korea settled in Japan, making steel swords of a straight, usually two-edged form. The Jap-

anese were quick to learn the basic arts of forging iron and began further to explore the techniques. Swords from the seventh and eighth centuries have been excellently preserved among the ancient treasures of the *Shōsōin*, the Imperial storehouse in Nara, since its construction 1,200 years ago. These give evidence of a transition from the straight sword to a singled-edged, curved blade, a style which had become general by the ninth century. This classic shape is primarily a cutting or slashing weapon with emphasis on sharpness, strength and balance.

Over the centuries new methods of warfare developed, forcing alterations in sword length and shape. Blades became shorter and straighter as combat on foot rather than on horseback was adopted. In the 16th century the style of mountings began to change from *tachi* (a long sword slung from a belt) to *katana* (a shorter sword worn in the sash, edge upwards). Such changes unfortunately induced many warriors to have very old blades shortened, sacrificing the original graceful proportions. Of the many types of blades in existence, experts favour the long blades (*tachi* and *katana*) and daggers (*tantō*), considering their manufacture to be the supreme test of a swordsmith's skill.

Two 17th-century (Shinto period) blades mounted in shirasaya (protective mounts of plain wood). Upper blade by Kanenobu of Mino, lower by Kunimasu of Osaka. ROM collection





The period from about A.D. 900 to 1600 saw the rise of the *samurai*, a warrior class. The *samurai* dominated Japanese social structure until the 1860's, during 700 years of political and social upheavals, intermittent wars and internal struggles for power among great feudal lords. Control of the country eventually shifted from Imperial power to strong military governors or *Shōguns*. Swords were produced in vast quantities to meet the warriors' demands.

For the *samurai*, the sword, a vital part of his existence, became a symbol of office and authority. Two swords were worn as the badge of his rank; elaborate systems of etiquette governed every aspect of their use and decoration. The *samurai* came to regard his blade as the visible embodiment of his own soul, witness to his honour. As such, it was treated with extreme reverence. To abuse or neglect his blade was a sign of moral decadence in a *samurai*, tokening disrespect for his heritage.

In 1615, the Tokugawa family founded a dynasty of *Shōguns* which lasted until mid-19th century. These years, known as the *Edo* period, were ones of internal peace for Japan and virtually total isolation from the outside world, both strictly enforced by the Shogunate. The age of battles was over. Although the sword never lost its deadly function, it began to acquire more aesthetic value than ever before.

Restoration of power to the Emperor Meiji in 1868 foreshadowed the end of the old feudal system. Despite great opposition, the *Haitōrei*, an edict which forbade the wearing of swords, was passed in 1878. Officially the *samurai* class was no more. Bereft of their hereditary income, many *samurai* families were forced to sell their valued possessions. Many thousands of swords left Japan, finding a ready market in Europe



*Tang of the blade by Tadakuni,  
with cutting-test results inlaid in gold:  
"Kanbun second year, third month, third day [1662].  
Yamano Kauemon Nagahisa [the tester's name—  
he was 65 at the time] two bodies severed."*

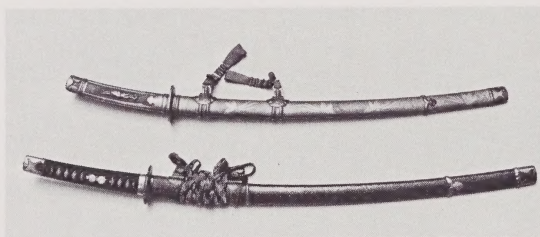
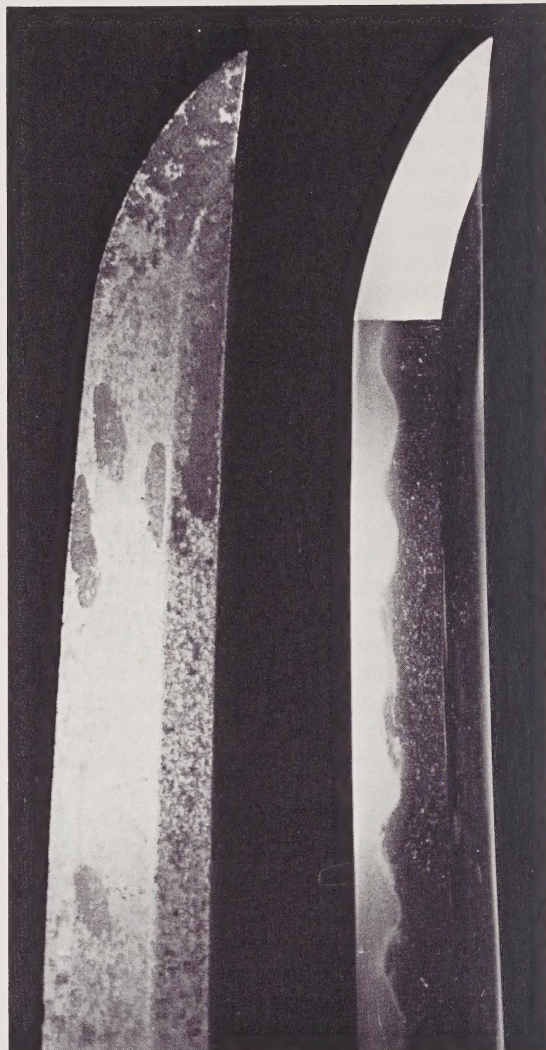
ROM collection



*Left: 17th-century blade by Tadahiro, badly in need of repairs. Right: 16th-century blade by Kanenobu, newly polished by a Japanese expert. The tempered line is clearly visible. When acquired, this blade was in worse condition than the other.*  
*Author's collection*

*Two tachi-style swords.  
The upper sword is mounted for court or ceremonial use, the lower in military style.*  
*ROM collection*

*Short sword blade in the style of Akihiro of Sagami (14th century) with a false signature, "Sadamune." Note the full (hitatsura) style tempering.*  
*ROM collection*





and America. The major portion of all foreign collections of swords was formed within a few decades of the *Haitōrei* edict. At the end of the Pacific War in 1945, and during the subsequent occupation of Japan, many more swords left the country in the hands of allied personnel. Among them were some cultural treasures which Japan has never recovered.

Valuable blades were often presented by *daimyō* or feudal lords as gifts of appreciation to favoured retainers, or to seal important negotiations. Many a noble lady took with her to her bridegroom's house a valued family sword as part of her dowry. A single fine blade could represent the price of an entire estate. Treasured swords were handed down in families for generations, maintaining a link with the spirits of long-dead ancestors. For this reason, many Japanese blades made a thousand years ago are in gleaming condition while their European counterparts are little more than corroded bits of iron.

Strict religious ceremony accompanied the forging of a Japanese blade, imbuing it with strong spiritual qualities. During the forging process, the smithy was considered as holy as a shrine. It was fenced off with the straw rope and folded papers which signify a place sacred to Shintō gods. The smith was required to follow certain personal restrictions during the time of forging. He poured cold water over himself to purify his body for the divine task ahead, and after praying before the god-shelf in the smithy, began his work early in the morning when the air was purest.

Ancient methods have changed but little

over the centuries and the forging processes of a thousand years ago are used in Japan today. The sword is made of pieces of iron which are heated in pure pine charcoal. These pieces are broken up, welded together, broken again, and finally hammered and folded upon each other hundreds of times, combining with the charcoal to form a steel of high carbon content. Several grades of steel are used—the hardest for the blade edge and the softest for the core. These steels are forged together, hammered into the basic form of the blade, and then roughly shaped with files. A unique tempering process gives the cutting edge an extremely hard, crystalline structure, while the rest of the blade remains slightly flexible and resistant to fracture. The countless layers of folded steel give the blade's surface a texture like wood grain. This, as well as the line of the tempered edge, may be of many shapes or patterns, according to the swordsmith's style. These and other individual features of construction make it possible to establish the age and origin of a Japanese blade. Only the skill of a master polisher can reveal the exquisite patterns of the steel, at the same time giving the blade razor-sharpness. As many as 14 grades of stones and powders are used in a process requiring extreme patience. Today's polishers still work completely by hand, but they have discovered new materials which bring out a sword's beauty to a degree hitherto unobtainable.

Artistic beauty was a natural outgrowth of the sword's perfection, but the prime consideration of the smith was to create a weapon capable of bringing swift and sudden death. Stories of the sharpness of Japanese blades are seldom exaggerated. Miyamoto Musashi, renowned artist and master swordsman, once cut in half a sparrow without striking the stone upon which the bird sat.

During the age of battles a sword had every chance to show its worth in action, but not in a peaceful era. In the Edo period some *samurai* felt the need to prove the powers of newly made blades. Various tests were devised: cutting through old armour, metal plate, or bundles of bamboo and straw. One blade in the







Dai-sho (see p. 4), the longer sword (katana) dismantled to show its components. The entire hilt assembly is held in place by one small bamboo peg. The smaller sword (wakizashi) is mounted to match the katana. ROM collection

*Diagram of a corpse with the standard cuts enumerated—from a handbook of the Yamada family of sword testers*

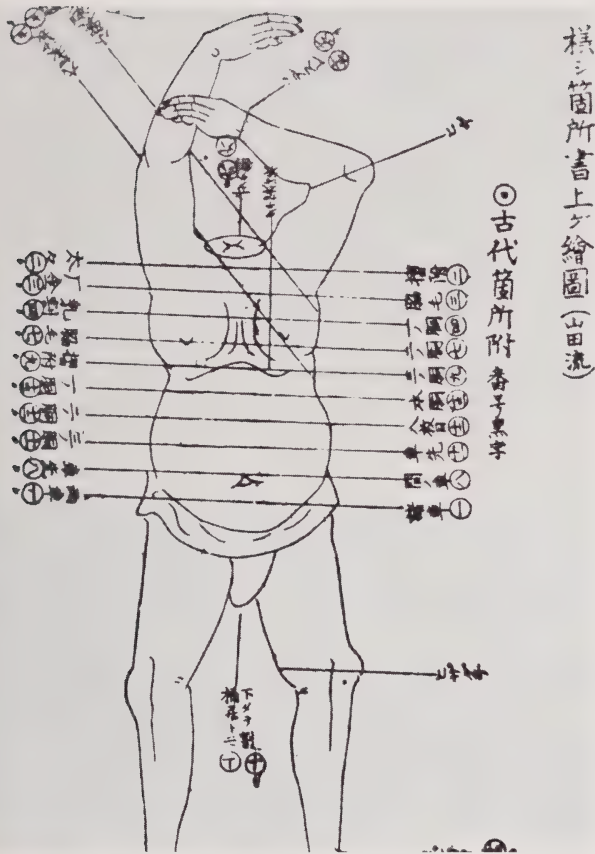
ROM collections gives evidence of its performance in a more unusual trial. A gold inlaid inscription on the tang of the blade describes a test in which two human bodies were neatly severed. Such trials were carried out with strict formality and the results were carefully recorded, particularly any chipping or bending of the blade. It was the custom to use the corpses of executed criminals, rather than living persons.

Ghost tales and superstitions concerning swords are legion. Some were said to leap from their scabbards or change into serpents to protect their masters. Certain blades were reputed to cure illness or protect against calamity. Many shrines have an ancient blade as the focus of worship, symbol of the god's invisible presence. Blades made by Muramasa of Ise are

still considered to harbour a thirst for blood which can drive their owners to death or destruction. This belief was initiated by Iyeyasu, first of the Tokugawa *Shōguns*, who experienced several personal misfortunes involving Muramasa blades. He greatly feared them and forbade any of his officials on pain of death to carry or even own one.

Some especially prized blades were given such fanciful names as "Dew on the Grass," "Knee Cutter," and "Direct Method." Others earned names: *Kogarasu Maru*, the "Little Crow," was said to have been found in the nest of a gigantic bird. *Kogitusune Maru*, the "Little Fox," was forged by the famous Kyōto smith Munechika assisted by a fox-spirit, messenger of the god Inari. *Dōji-Kiri* was the blade used by the hero general Raiko to slay





Shuten Dōji, a monstrous mountain-bandit who terrorized the countryside.

The Japanese separate their swords into two historical periods. The Koto (old sword) era spans the period from about 900 to 1610. It was then that swordmaking in Japan reached the zenith of perfection. The century from 1250 to 1350 produced such men as the ten pupils of Masamune, who himself is considered the greatest of all smiths. There were five major schools of smiths in the Koto era, each in a different province and producing a distinct style of blade.

The Shinto (new sword) era began with the Edo period, an age of extensive development in all the arts. There were numerous schools, each associated with the province governed by a *daimyō* who might directly employ several

smiths. Swordsmiths strove to increase their skill, sometimes seeking inspiration from the works of their predecessors, but often devising new techniques. In spite of refinements, however, few of these men could match the skill of the Koto masters.

In the Edo period, collection and appreciation of swords became extremely popular among the upper class and numerous books were published dealing with all aspects of sword knowledge. By this time a wealth of complex sword terminology had developed, part of the vast and varied technical jargon bestowed by the Japanese on all their arts. This language-within-a-language contains names of sword parts, names for parts of parts, and other names for countless variations in shape, style, or appearance. In describing a single blade, one might employ as many as forty different terms drawn from a source of literally thousands.

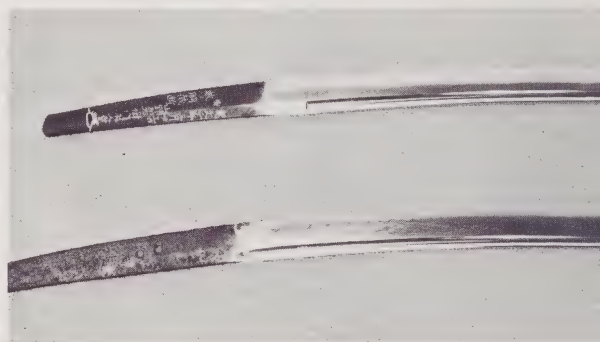
The Japanese have always been meticulous in the care of their weapons. When examining a blade, a complete ritual must be followed, both to prevent damage to it and to provide complete aesthetic satisfaction. A sword is always drawn or sheathed with its cutting edge upwards to prevent damage to the blade or scabbard. The blade must never be touched with bare hands—a silken cloth is used. Etiquette demands that no uninvited comment about a blade's qualities should pass the examiner's lips.

Widespread interest in swords naturally led to forgeries in whole or in part. Genuine works by the greatest smiths are by no means common and the majority of these remain in Japan. Most of the "big name" blades in Europe and America are of doubtful origin as regards their maker, although they may indeed be of good quality. As early as the 12th century the foundations of sword appraisal had been established. An appraiser would need a lifetime of study to separate and evaluate the styles and characteristics of hundreds of thousands of swordsmiths. The Honnami family is perhaps the most renowned and although their blood line is extinct, several Honnami disciples still carry on the art of appraising fine blades.

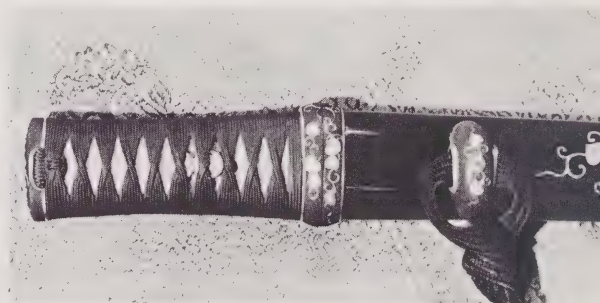




Those who seek the rarest treasures are doomed to disappointment. Age has little importance in judging Japanese blades except to establish historical connections. An ideal approach is to appreciate a blade for its positive qualities: skill of workmanship, grace of proportions, details of forging. These are the only standards, for large numbers of early blades exist, and in all periods bad swords were made as well as fine ones. If all the blades attributed to the great Masamune were genuine, their manufacture would have kept the old man and three assistants busy for several hundred years.



*Upper blade by Tadakuni of Hizen Province (c. 1660) with an inlaid cutting-test inscription. Lower, tachi blade signed Kuningaga and dated to the equivalent of A.D. 826. There is some doubt as to this date, but the blade is certainly not later than 11th century.*  
ROM collection



*(left) Detail of "Masamune" sword. ROM collection*

*Aikuchi, a type of short dirk mounted in proper court mountings, and bearing the family crest of the Tokugawa shoguns. Author's collection*



The subject of mountings for Japanese swords is just as complex as the study of blades and closely related to it. Only the exquisite quality of Japanese blades prompted such elaborate and skilfully made fittings. Because the Japanese male wore no personal jewellery, the sword offered a vehicle for displaying social position and artistic taste. Particularly in the Edo era, thousands of expert metal-workers specialized in making sword-furniture. Within the set dimensions of the *tsuba* (sword guard) or an inch-long hilt ornament, the artisan produced a thousand wonders of design without repetition. These men, working in iron,

copper and other soft metals, developed an astounding variety of styles and processes which remain unmatched to this day. It is little wonder that Japanese sword fittings were received with such eagerness by collectors in the West, unfortunately to the neglect of the blades that they adorned.

Eventually, it is hoped that all the fine blades in the ROM will, with the cooperation of a Japanese polisher, be resurrected from their long and rusty sleep. Then the museum visitor may glimpse in the patterned sheen of that magnificent steel the vital spirit of a vanished age.



*Two 18th-century pierced and carved iron tsuba; left, design of rice-ears; right, bamboo plants.*

David Pepper, an artist-craftsman with the ROM's Display Biology Department, is a devoted student of Japanese art. A graduate of the Ontario College of Art, Mr. Pepper has recently returned from a 2½-month visit to Japan, where he met collectors and experts and was fortunate enough to be invited by several *samurai* families to see their swords. He is currently engaged in part-time research of the ROM collection of Japanese arms and armour.

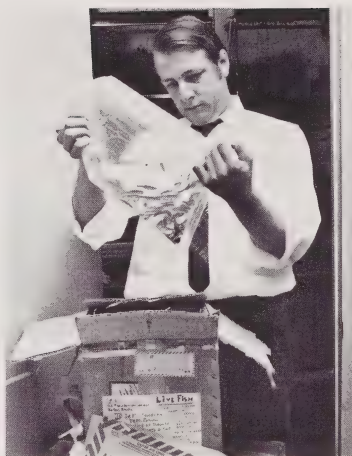




by E. J. Crossman  
Curator,  
Department of  
Ichthyology and Herpetology

*Peter Buerschaper examines an  
air shipment of fish just unpacked.*

*Photograph by Leighton Warren*



Preserved fishes are the basic and traditional research material of the museum ichthyologist. Fishes are stored in various size containers of glass or plastic, and even in fibre-glassed wooden boxes.

The fish in research or study collections are kept in solutions of 65% alcohol, after the tissues have been fixed by a three-day bath in 10% formalin fluid.



Internati



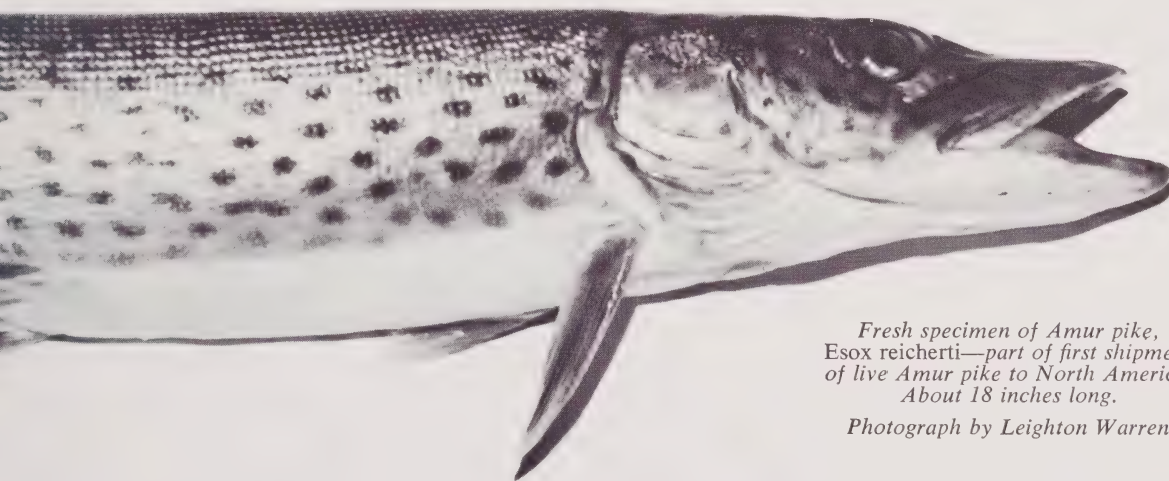
Our organized and catalogued reference collection provides the foundation for acquiring and publishing data, teaching, describing faunas of particular areas, and preparing, authenticating and documenting illustrations and public gallery exhibits. The collection of specimens must also be constantly increased and maintained.

A number of techniques and scientific disciplines developed in recent years require living

specimens. Ethology or the study of animal behaviour, comparison of chromosome number and structure, biochemical analyses of various body proteins usefully add to or corroborate studies of preserved specimens. Today, living specimens for these studies are most often acquired by international air shipment or "fishlift."

Before plastics, oxygen cylinders, and airplanes, live fishes were shipped by train in heavy metal cans. Someone had to accompany them, to

change the water regularly in order to provide oxygen, and to maintain the temperature within safe limits over the journey. Rail shipment was both impractical and very costly. International shipments were virtually out of the question. They were usually limited to large numbers of fertilized fish eggs, which were to be the original stock for the introduction of an exotic species.



*Fresh specimen of Amur pike, Esox reicherti—part of first shipment of live Amur pike to North America. About 18 inches long.*

*Photograph by Leighton Warren*

# nal Fishlift



Now, almost all live fish are shipped in a small amount of water in heavy plastic bags which have been inflated with oxygen and sealed. The temperature of such light containers may be controlled easily by insulated packing material, or by an accompanying bag of ice. Sport fish raised in government hatcheries are often packed this way when they are flown to the lake or stream into which they are to be released. Later this summer, Peter Buer-schaper, senior technician in the Department of Ichthyology, will be involved in preparing an air shipment of goldfish from High Park, Toronto to Osaka, Japan for the Canadian Pavilion at Expo 70. Such light, safe and dependable packing and the availability of inexpensive air express shipment now make it quite feasible to send around the world even a small number of live fish for a specific research project.

An ichthyologist's studies of a group of fishes which have a world-wide distribution must include specimens from various localities over the wide area inhabited by each species. It must also include those members of the group which do not occur in his own country. Part of

my research involves the study of all the species of fishes which make up the group to which the northern pike and muskellunge belong. In order to utilize the results of some of the newer techniques it is necessary to acquire living fishes to augment the information gained from preserved collections of each species. Foreign researchers, the Canadian Department of External Affairs, the U.S. Fish and Wildlife Service and state and provincial Fish and Game Departments have been most cooperative. Various species have been shipped alive from Ontario, Quebec, North Carolina, Alabama, Alaska, Washington, D.C., Washington State, Pennsylvania, Wisconsin, Czechoslovakia, and the U.S.S.R.

In still another example of research cooperation, the biochemical aspects of this research are being carried out for me by Dr. H. Tsuyuki, in the Vancouver laboratory of the Fisheries Research Board of Canada. This specialized work is being done in Vancouver because Dr. Tsuyuki is a leading authority on the application of these techniques to the study of fishes and because the ROM had no laboratory facilities for such work when the study was initiated in 1964. A National Research Council grant,

*Loading live muskellunge  
at La Roberge, Quebec,  
for shipment to Dr. Tsuyuki  
in Vancouver  
for biochemical studies.*

*Adding water to plastic bags.*

*Inserting live specimens.*

*Tying bag after inflation  
with oxygen.*

*Photographs by Pierre Lavigne*





awarded in 1969, will establish at the ROM a biochemical laboratory for similar studies on many different types of animals.

Some of the species I collect myself and ship to Vancouver. Some are shipped by air, from distant collectors, directly to Vancouver. Others are shipped to the ROM, where they are unpacked and kept in storage tanks until they can be repacked in new plastic bags with more oxygen and reshipped by air to Vancouver.

In order that the fish are in their artificial environment for as short a time as possible, shipments from Toronto are made early in the morning. By design, or accident, foreign shipments invariably seem to arrive in the middle of the night. Since we must be sure the fish are still alive, and must reoxygenate them as soon as they arrive, Peter Buerschaper and I are no strangers to the night staff at Toronto International Airport.

Air shipment in Canada is rather simple; there are only two airlines involved, and they offer nonstop flights from Toronto to Vancouver. It becomes more complicated when shipments are from the southern United States and flights involve several airlines and several trans-

fers of the shipments in various airports. Shipments have been lost in terminals and started on their way again only after several long distance telephone calls. Only two shipments have been completely unsuccessful. In one case, the fish died in transit during a strike of airline employees. In the other, the necessity of rerouting the package over a longer distance caused the trouble. Non-striking airlines, overwhelmed by increased traffic resulting from a strike, may place an embargo on all live material and refuse to accept such shipments. If the refusal occurs in the middle of a shipment it can cause long delays and even a partial re-tracing of the route.

One shipment of blackfish, *Dallia pectoralis*, which occurs only in Alaska and Siberia, travelled as hand luggage with the wife of the collector, a staff member of the University of Washington. She was returning from Alaska to Seattle, where she was met at the airport by a university student who reoxygenated the fish and trans-shipped them to Vancouver. Another shipment of blackfish from the U.S. Fish and Wildlife Service at Bethel, Alaska, to Toronto was refused by a Canadian airline at Vancouver, after the fish had travelled that far on three other airlines. The last carrier was obliged to return the shipment to Seattle, where it was re-routed to Chicago and Toronto. Fortunately the blackfish is very tolerant of low oxygen levels, and all the fish survived a five-day air express trip with no replenishment of oxygen.

By far the most exciting example of Operation Fishlift and international cooperation were shipments from the U.S.S.R. and Czechoslovakia.

Two species of the group being studied, the Amur pike and the European mudminnow, do not occur in North America. The Amur pike occurs only in the Amur River between Russia and China. The European mudminnow occurs only in the watersheds of the Danube and Dniester rivers of eastern Europe.

Two lots of live European mudminnows were shipped by Dr. Ota Oliva of Charles University, Prague, Czechoslovakia. This species is increasingly difficult to obtain, and Dr. Oliva

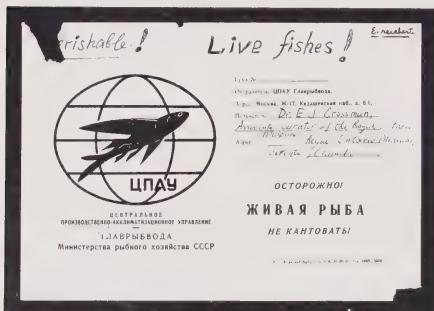




*The author examines  
Amur pike at the ROM, after successful  
48-hour air shipment from Siberia  
to Toronto via Moscow and Montreal.*

*Photograph courtesy of Toronto Telegram*

*Detail of special Russian shipping label,  
obviously intended for air shipments  
of live fish. The design shows one of the  
species flying fishes, family Exocoetidae.*



had two groups of fishery biologists scouring the Czech countryside in order to get them. They were sent in exchange for live specimens of snapping turtle, which does not occur in Europe, and preserved specimens of Canadian fishes, which we sent to Dr. Oliva.

Obtaining the Amur pike was much more difficult. After six years of unsuccessful attempts to make the necessary contacts via individual ichthyologists, as a last resort I enlisted the aid of the Canadian Embassy in Moscow. Within a few weeks, Ottawa informed me that an attempt had been made, that most of the fish had arrived in Moscow dead, and that another attempt would be made. Within another week, on May 14, 1968, I was informed that the shipment would arrive at Toronto International Airport at 2 a.m. I was on hand to take receipt of 11 live fish, 15-

20 inches in length, in eight plastic tubes, in four cardboard boxes.

These 11 live fish had travelled three-quarters of the way around the world in less than 48 hours. They had been captured on May 13 in nets set especially for the purpose, in the Amur River at Chabarovsk in the far eastern U.S.S.R. Within 20 hours they had been flown to Moscow, where they were reoxygenated and then flown to Toronto.

Dr. S. I. Doroshev of the All-Union Research Institute of Marine Fisheries and Oceanography had kindly acted as overseer for the shipment. Dr. Doroshev had been connected with the shipment of Russian sturgeon to the Russian Pavilion at Expo '67. He had been to Montreal and had met Mr. Paul Montreuil, the Curator of the Montreal Aquarium. Dr. Doroshev, aware that the Moscow flight terminated in



Montreal, advised the Montreal Aquarium of the flight and asked them to watch for the shipment in case it needed care during transshipment there.

Since Amur pike had never been seen alive in North America, one was sent to the Montreal Aquarium and one to the Vancouver Aquarium for display. At the time of writing the Amur pike sent to the Vancouver Aquarium was still alive. The remaining fish were kept at the ROM until Monday, May 20, when they were shipped on to Vancouver to serve the research purpose for which they had been acquired.

The novelty of this foreign species of fish, their purpose, the method and distance of shipment and our difficulties with them while they were at the ROM were featured in several newspaper articles. They were also the subject of a satirical news story on the Max Ferguson radio programme. Sadly enough, the one factor not emphasized in the news coverage of the event was the triumph of Operation Fishlift, and the international cooperation which had made it possible to carry out, in Canada, biochemical studies with live fishes which occur only in a limited area over 7,000 miles from Toronto.

Research results obtained from the Amur pike were so exciting that the biochemist and I felt it necessary to obtain data from Russian specimens of the northern pike to compare with northern pike from Canada. In October

1968 I once more wrote to Dr. Doroshev and the Canadian Embassy in Moscow requesting more live fish. I hoped that they could collect and ship specimens in the spring of 1969. Just two months later, I was warned by telephone from the Department of External Affairs to watch for a shipment of pike from the Volga River. When they arrived at Toronto airport they were accompanied by a letter from Dr. Doroshev. This letter said in part, "I am sorry that the shipment of live pike took so long. Winter in the U.S.S.R. is not the best time for transporting live fish. If any accident took place we can send you another consignment in the spring." Again, all fish were alive.

In exchange for the Russian fish Dr. Doroshev requested published information on striped bass and specimens of lake sturgeon. The literature has been sent and the Ontario Department of Lands and Forests has kindly agreed to try to capture and send to Dr. Doroshev specimens of sturgeon. The Russians have sent eggs of the Amur Pike to Pennsylvania in exchange for eggs and live young of striped bass, a North American species they wish to introduce into Russia. These exchanges were also airlifted.

In this day of the arms race, the race to the moon, the struggle to exceed in gross national product, such cooperation between scientists and educators of the east and west is encouraging.

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E. J. Crossman, Curator in the Department of Ichthyology and Herpetology at the ROM, was born in Niagara Falls, Ontario. He received his B.A. from Queen's University, M.A. (Zoology) from University of Toronto, and Ph.D. from the University of British Columbia. His principal field of research since 1957 has been the biology, distribution and systematics of freshwater fishes, with particular interest in esocoid fish — the pikes. Dr. Crossman is married and has two children, John, 14 and Karen, 11.





# Altun Ha

## *a tourist's notebook*



*Decorative mask on  
the main Altun Ha pyramid*

In his delightful collection of philosophical travel essays, *Beyond the Mexique Bay*, Aldous Huxley says: "If the world had any ends British Honduras would certainly be one of them. It is not on the way from anywhere to anywhere else."

Huxley's verdict of 35 years ago on this small corner of Central America stood until very recently. But now British Honduras is changing and visitors arrive by every plane to fish or to buy island hideaways — and some to see lost Maya cities which tourist



*Rockstone Pond—reservoir for the old city*





*The main pyramid at Altun Ha*

by Hugh Pryce-Jones



*In an Altun Ha tomb, sock-footed worker painstakingly brushes away dust from artifacts*

*(centre) Altun Ha—the main plaza*

*(below) The main pyramid at Altun Ha.  
A panoramic view rewards those who climb the ladder at the left*



brochures never get around to mentioning. A jet strip for airliners serving cities all the way from Miami to Panama is hardly the end of the world. And apple-cheeked boys from such widely separated points as Wasaga Beach, Ontario, and Frankfurt, Germany, career down jungle trails in their jeeps hell-bent south for Patagonia, suggesting that British Honduras is at last on the way to somewhere even if it is only Tierra del Fuego. Right now the National Geographic Magazine is combing the country for an article that will likely appear in late 1970 or early 1971.

In Huxley's day it would have been a long, long leap in time and space from Queen's Park and Bloor Street to the palm-thatched bungalow in the ROM compound at the old Maya city of Altun Ha in the northern half of British Honduras. But an electric generator bringing light, a refrigerator, a drilled well, a fill-it-yourself shower bath from Abercrombie & Fitch, cold pop, regular visits by a food truck from town, a neighbourhood laundryman who pops out of the thicket on his bicycle and a steady stream of North American tourists all help to create the feeling this March morning in the jungle that the time is next summer and the place almost anywhere—palms excepted—in the Georgian Bay or Haliburton districts.

At Altun Ha—translated from the Maya language as "Rockstone Pond"—Dr. David Pendergast's archaeological team is peeling away the centuries from what appears increas-

ingly to be a highly important chapter of one of the Western Hemisphere's great mystery stories—the rise and fall of Maya civilization. In the process, and all unintentionally, the ROM people are creating a major tourist attraction for a soon-to-be independent nation that needs just that.

It is told in Belize, the capital, that four years ago, the entire British colony attracted slightly more than 100 tourists in a year. Recently 600 visitors a month have braved the bone-bruising 70-mile round trip from Belize to Altun Ha by Land Rover and ancient taxi.

I spoke to scores of British Hondurans, from Prime Minister Price to hotel bartenders, and all appreciate the work of the ROM and refer to it as a Canadian contribution. Half the population of Belize seems to know the name of Dr. Pendergast. The claim of even a tenuous association with him can work a miracle in producing transport or favour for the stranger.

The main bungalow at Altun Ha is comfortable and neat, well screened, has a cool concrete floor, and adequate kitchen, living, eating and sleeping areas. The flags of Canada and of the ROM are displayed along with a collection of rare jungle orchids gathered by the lady of the house, Esther Pendergast.

Dr. and Mrs. Pendergast and Claus Breede, also on the ROM staff, direct about 20 workers at the site. Many are Maya Indians, descendants of builders of the ancient city, while some



*ROM compound, seen from the top of the main pyramid*



are Creoles. Mr. Breede has his own smaller bungalow with an office and there are also sleeping and kitchen facilities for some of the diggers who are not ordinarily residents of the neighbourhood.

Dressed in crisp khaki, relaxing with his visitors in folding canvas chairs under the thatch, Dr. Pendergast looked just as one hoped he would look, the very explorer-cum-archaeologist.

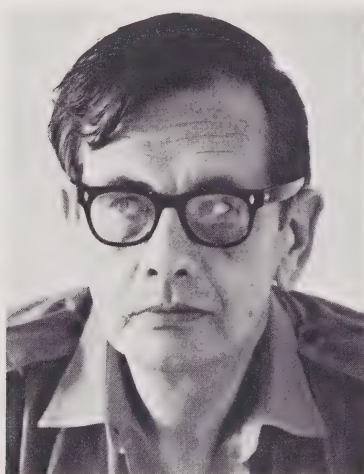
He talked of an emerging theory that may be published one day about a possible reason for the mysterious abandonment of the jungle cities by their Maya builders. It was a new and imaginative theory that might have a bearing on some of the events of our own day. It was

a theory for which Dr. Pendergast believed evidence had been found.

In the meantime, day by day, in the heart of this long-lost city founded nearly 2,000 years ago the archaeologists of the ROM are making discoveries recognized as highly significant by other leaders and authorities in the field of Middle American archaeology.

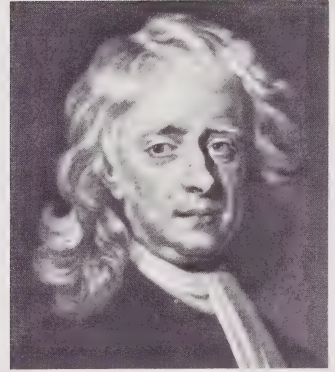
Once on a television programme Dr. Pendergast was asked how anyone could possibly justify the cost of archaeology.

"In the case of the Maya," he said, "a powerful and brilliant society had been sustained for 2,000 years without armies and without wars. If our world could ever discover the secret it might more than justify the cost of all the digging."



Hugh Pryce-Jones, the tourist of *Altun Ha*—a tourist's notebook, is a member of the Board of Trustees of the ROM. He was born in St. Thomas, Ontario, and educated at Columbia University. A former journalist, he has been a public relations executive with Canada's largest advertising agency and, for the past nine years, with General Motors of Canada. His interest in Pre-Columbian archaeology and art has taken him and his wife on several journeys in Southern Mexico, through much of the Territory of Quintana Roo, the islands of Cozumel and Isla Mujeres, the States of Yucatan, Campeche, Oaxaca and Chiapis and south from Mexico through Central America from British Honduras to Costa Rica.

# The McLaughlin Planetarium



The heavens seem to provide a bewildering variety of fantastic stars. The sun is a star, 1,000 times larger than Jupiter, the largest planet in our solar system, and a million times larger than the earth. There are giant stars, so large that in our solar system they would completely engulf the orbit of the earth. There are dwarf stars, tiny in size but not in mass. A cubic centimeter of one of these could weigh more than 100 tons. Many stars which appear to be single objects to the unaided eye actually consist of two, three or even more suns. Some stars which can be much more luminous than our sun will vary their size and brightness dramatically in less than a week. Occasionally a star will destroy itself in a cataclysmic explosion.

The McLaughlin Planetarium Star Theatre show, "Some Famous Stars," which begins July 15, will introduce a number of stars made famous either because of their importance in astronomy or because of their unusual properties, and fit them into the modern picture of the universe. "Some Famous Stars" runs until September 21.

On September 23 a new show, "The World of the Moon" begins. Until recently, Man's knowledge of the Moon depended mainly upon what he could see and photograph through telescopes. This year Man will have completed his first toddling step in the exploration of the Universe. He will have set foot, for the first time, on another world—the Moon.

The Moon will never be a comfortable world, for conditions there are far worse than anywhere on our planet. With no air or water or life of any kind, the only familiar sight will be the Earth, 240,000 miles away, appearing 50 times brighter than the moon does in our sky. During the two-week day temperatures soar to 240°. A night of equal length experiences —230° readings, forcing future lunar colonies underground. Yet the Moon will be slowly colonized, a process likely to speed up if valuable minerals are found in quantity below its sandy surface. Although we cannot propel you to the Moon and back we can provide an exciting review of present knowledge, and in imagination at least lower you gently upon its surface.

The portrait of Sir Isaac Newton, shown here, is the generous gift of Mr. R. Presgrave of Toronto to the McLaughlin Planetarium. The charming 7½" X 7" mezzotint was drawn in 1760 by James MacArdel from an original portrait printed by Enoch Seeman (1694-1744).

The number of original portraits of Newton made from life is not large, nor is the number of engravings made by artists of prominence. Of these the painting by Gandy, executed in 1706 when Newton was 64, is one of the most noteworthy. Next to Gandy may possibly rank Seeman, or perhaps it is safer to say the MacArdel mezzotint of his painting, for the latter is generally regarded as a work of remarkable refinement and character.





*Old and angry lion, just prior to charging the Land Rover, Lake Manyara, Tanzania*





# Two Africas

by T. M. Shortt

Gloomy, foreboding Budongo forest, echoing to the hooting of troops of Chimpanzees and the thunderclaps of violent flash storms—the unrestricted horizons of Nairobi Park and the Athi plains, clad in Red Oat grass and Whistling Thorn scrub, land of big skies—two more dissimilar areas can hardly be imagined, yet both lie within a few miles of the Equator. In the summer of 1968, a ROM “African safari” came to collect specimens, sketches and background material for two dioramas to add to the ROM zoogeographical displays showing the major ecological regions of the world. It was guided by John G. Williams, leading authority on East African wildlife and Research Associate in the ROM Department of Mammalogy, and his colleague, Robert Glen, who is possibly the finest hunter and scientific collector now working in Africa. Their experience was invaluable to me and my assistant, Paul Geraghty.



*In the Budongo forest.  
Paul Geraghty, Robert Glen  
and sawmills foreman.  
Budongo forest,  
western Uganda*



*Just before the charge  
Black Rhinoceros.  
Ngorongoro Crater, Tanzania*



Our first goal, the Budongo forest, lies east of Lake Albert, and represents an ecological intrusion into western Uganda of the great Congo Ituri rain forest. We planned that our diorama should depict the “roof” of the forest, the sun-drenched canopy where life abounds, rather than the floor where light penetrates only feebly and briefly. In undefiled portions of the forest, the canopy hangs 80 to 120 feet above the ground. Here and there a giant tree raises its leafy crown another 30 to 50 feet higher.

The ROM expedition spent five weeks studying and collecting the flora and fauna of the Budongo tree tops. Collecting birds and mammals for the exhibit was not easy, despite the skills of Williams and Glen, who could locate by sound and sign any and all of the forest creatures. Even so, animals were difficult to see up in the thick foliage. It was even more difficult to get a clear shot, and most toilsome to locate and retrieve a felled specimen in the dark undergrowth.

*Some of the two million Lesser Flamingoes on Lake Nakuru, Kenya*



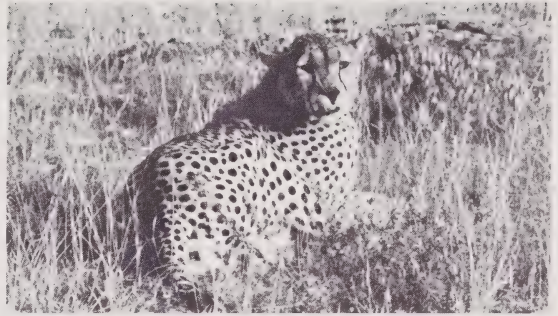
Then there were ants—the bane of the tropics. One had ever to be watchful for the barbarous blind driver or safari ants, multitudes of which move in columns through the forest from one bivouac to another, consuming en route every living thing they can capture and overcome. An invasion by drivers means open warfare or inglorious retreat.

More bothersome, because they were everywhere, were the small ants which reside in hamburger-sized black mud nests cemented to the undersides of leaves, three to 100 feet from the ground. In some areas most saplings bore housing developments of 50 to 100 nests. To touch such a sapling was to be showered by hundreds of sharply biting ants.

Other species caused frequent skirmishes over who should eat our provisions, we or they, or made us enter into a battle of wits for the ownership and security of our birdskins. On one occasion I left a colour sketch of a Shining Blue Kingfisher drying on a camp stool near my bed. Imagine my surprise the following morning when I found it colourless, only the pencilled outline remaining. Had it not been for a few near-surfeited ants indolently lapping up the last shreds of casein paint, I might have concluded that I had been the victim of African Voodoo.

There are other hazards in the tropical forest. Wading thigh-deep in a forest pond to set up a mist net for the capture of specimens, it is a bit disconcerting to discover that the vegetation bordering the pond is well populated by the snail which acts as intermediate host to the schistosomes that are the agents of *Bilharzia*. Then, too, the African rain forest has more than its share of venomous snakes. We encountered the deadly Puff Adder, Jameson's Mamba, Black-lipped Cobra, Rhinoceros Viper and Gaboon Viper, and the less dangerous but still formidable Night Adder, Boomslang and Blanding's Tree Snake.

Perhaps the most serious pest of all is the Tsetse fly, carrier of the tripanosomes which cause encephalitis in vertebrates. Fortunately the tsetse is claustrophobic and avoids the dark forest. Occasionally we were required to drive across extensive open areas of elephant grass,



*Cheetah. Amboseli, Kenya*

in order to reach a desirable part of the forest. On these trips, it was "all windows closed" to exclude the tsetse which came, to quote Rob Glen, "in their flippin' billions" to darken the car windows. We cheerfully endured the heat in the car's interior, under a blazing sun, until we re-entered the forest.

For inclusion in our rain forest diorama we hunted and collected such exciting birds as the Great Blue Plantain-eater, Splendid Glossy Starling, Long-crested Hawk-Eagle, Double-toothed Barbet, Shining Blue, Chocolate-backed and Woodland Kingfishers, Black-and-White-Casqued Hornbill, Ross's Turaco and a score of brilliantly hued Sunbirds, rivalling hummingbirds in the intensity of their colours. Of mammals there were several kinds of monkeys and squirrels. Nearly every day we encountered bands of Chimpanzees—one of the few animals I have known that is as raucous and boisterous as *Homo sapiens*.

To complete our collecting, we needed to make moulds and casts of the upper branches of one of the big trees, and to pickle its foliage and the wealth of epiphytes that anchor on its branches. It was simple enough, from a number of high ridges, to observe what climbed and flew and grew 100 feet above the ground. But how to get up there and work with the heavy materials needed to do the job?

The obvious answer was to bring it down and work at ground level. Accordingly I paid a visit to the Budongo Saw Mills to inquire if we might be permitted to work in the cutting



area on a recently-felled big mahogany tree. The East Asian manager could and would do better than that for the ROM. He delegated a foreman and team of sawyers to cut down, at our convenience, the tree of our choice, to be worked on without interference for as long as we wished.

I selected a giant mahogany and the sawyers fell to work. Even with the assurance that the tree was slated for cutting within the next few weeks, the rhythmic song of the big crosscut saws was hardly music to my ears. I had seen in other places the fall of large trees, and indeed had cut down a number myself, but to prostrate this giant seemed an almost frightening act of vandalism.

There was a rending uproar as the last connecting shreds—30 inches wide and 6 inches thick—parted. The tree swayed, caught fleetingly on the limbs of nearby trees and with increasing momentum commenced its drop. Its neighbours' sustaining limbs snapped, lianas came away whipping the air like livewires. The basal cut gave a vast ripping groan and the huge trunk shot down, smashing smaller trees,

shrubs and woody vines on the way. Its own branches, some as big as our city's maple trees, broke off with sounds like cannon shots and plummeted down on their own. When the bole hit the ground there was literally an explosion. The trunk snapped in three places. Bulky limbs shattered into innumerable twisted and tortured pieces. For some time bits of debris showered the area.

My first reaction was that there wasn't enough of the tree left to work on! A few hasty measurements indicated how greatly I had underestimated the tree's magnitude. Even a fragment of one of the big limbs was more than adequate to span our exhibit width of 24 feet.

For the remainder of our stay in Uganda, we worked about the "disaster area" making latex moulds of the mahogany's limbs, and gathering and preserving its leaves, fruits, and twigs and the ferns, orchids and other air plants, lianas, mosses and lichens, all of which had ridden to the ground on its branches.

During the day—in the forest a rather short day—we worked on the exhibit material. Near

*Tree-top siesta gives young lions  
relief from biting flies.  
Lake Manyara, Tanzania*

*Olive Baboons against the plains  
of Nairobi National Park, Kenya*



the equator the sun rises at roughly 6:30 a.m. and sets at 6:30 p.m. It is well after 7:30 a.m. before light penetrates the forest canopy and darkness rises in the interior before 6 p.m. Bats flew a half hour later, so mist nets went up over selected sites, with the Mammalogy collections of our colleague Dr. Peterson in mind. Their evening flight ended perhaps two hours later, when we returned to base camp and set out the mercury vapour lamp against a white sheet to attract the night-flying insects—our allegiance having switched to Dr. Wiggins of Entomology. Between 11 and 12 it was lights out and to bed.

This routine was frequently interrupted by sudden, brief but extremely violent electrical storms, a characteristic of the weather of western and southern Uganda. In a few minutes the storm is over, but a foot or more of muddy red water races down the placid jungle track, cutting deep channels through its surface. Trees have been blown down and scattered everywhere are broken branches, twigs and a leaf-fall comparable to that of a windy day in our autumn, save that these leaves are fresh

and green. A few hundred yards away the earth is dry, the trees are unruffled, and the sun has shone all day.

From the dark confining forest where one's vistas were measured in feet, our second assignment took us to the seemingly endless reaches of the grassy plains of Kenya, our horizons scores of miles away. The locality selected as the site of our exhibit was Nairobi National Park with its rich grasslands and the characteristic outline of the Ngong Hills in the background. The Park, only four miles from the business centre of Nairobi, has within its 44 square miles one of the finest selections of wild-life in Africa. Ten minutes' drive from downtown finds one in a wilderness populated by wild Giraffe, Zebra, Lion, Leopard, Cheetah, Rhino, Hippo, Warthog, 15 species of Antelope and a bewildering exuberance of bird life (more than 400 species have been recorded in the Park).

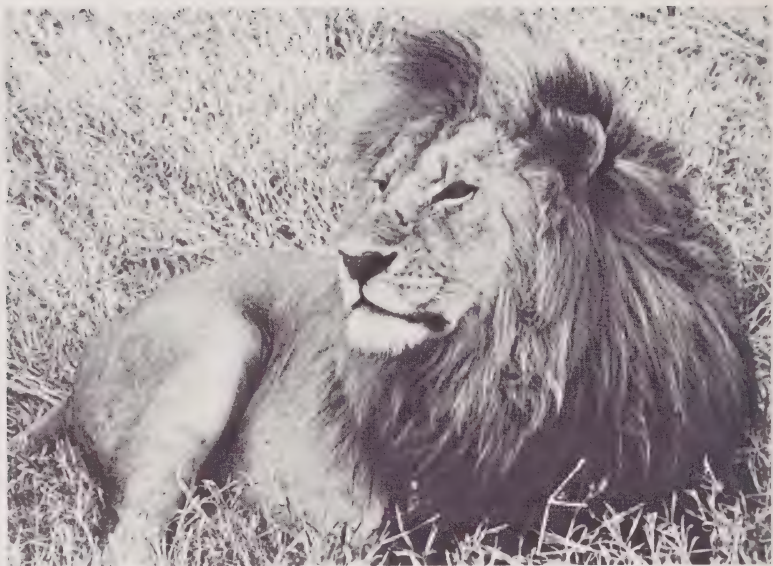
Here we obtained by photographs and sketches the background setting for our diorama, but we did no collecting, since not even a weed may be picked legally in a Kenyan National Park. Our collecting was accomplished on areas adjacent to the Park and characterized by the same botanical and faunal composition.

One thing we required was enough Red Oat Grass, standing vertically, to cover the floor of our showcase. Through Mr. Williams' efforts we obtained permission to dig up the grass on the farm of Mr. Hopcroft. On the first day we filled the back of the Land Rover with carefully collected and packaged bundles of grass, leaving behind us a rather bald area about the size of a small city lawn. As we prepared to leave, the Hopcrofts drove by, giving us a cheery wave.

The following day we were back for another Land Rover-full of grass—and again the Hopcrofts drove by, still waving gaily. On the third day, as the desert-like area grew, we fancied we could detect a slight look of consternation on their faces. What we had taken was, of course, a spoonful out of the ocean. Even so we moved our site of operations for the fourth Land Rover load to a spot a good deal farther from the road. Never overstay your welcome!







*Black-maned lion of the caldera,  
Ngorongoro, Tanzania*

*Masai Giraffe in the acacia woods  
of Lake Manyara, Tanzania*

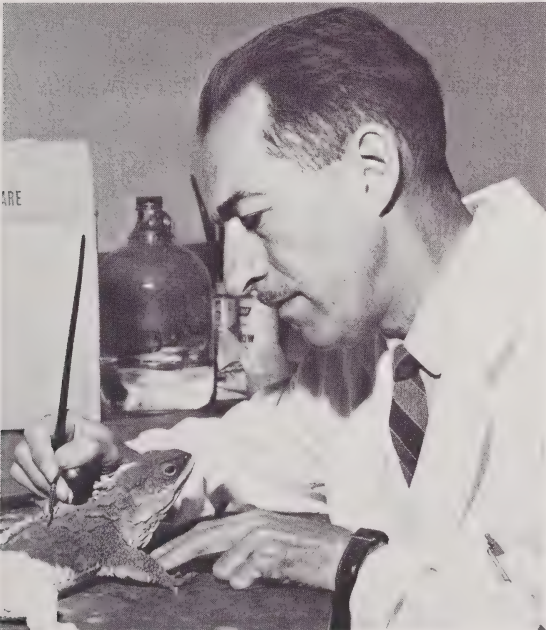


Specimen collecting on the plains was pleasurable—perhaps because I am prairie-born and feel at home in the flat grasslands. We collected Secretary-Bird, Helmeted Guinea Fowl, Yellow-throated Longclaw (a pipit that looks just like a little Meadowlark), Rufous-naped Lark, Augur Buzzard (a counterpart of our Red-tailed Hawk), Lilac-breasted and White-naped Rollers, Little Bee-eaters, Superb, Hildebrandts and Blue-eared Glossy Starlings, Pectoral-patch Cisticolas, Yellow-necked Spur-fowl, and others. Plaster moulds were made of the striking red-flowered Aloe, a succulent plant strongly resembling the Agaves of tropical America. Whistling Thorn bushes were carefully collected, and I do mean carefully, for the thorns are over two inches long and needle sharp. Compared to the Budongo, it was very pleasant work, because it was possible to see what one was doing, and the only pests were pepper-ticks!

Work on the Kenya grasslands exhibit, which features a grouping of three lions—superbly mounted by Knud Nielsen—has now been concluded and it will soon be on public showing.

With the completion of the Budongo forest group, scheduled for 1970, the zoogeographical hall will have made a long stride towards its goal of showing the major ecological regions of the planet we live on.

On our expedition we attempted, in addition to gathering the materials necessary for our galleries, to obtain as many specimens for the research departments of the ROM as time for incidental collecting permitted, especially in western Uganda. We were spurred by the knowledge that the three great forests of that region, Budongo, Bwamba and Impenetrable-Kayonza, will in five to ten years cease to exist as ecological entities. Clearing for tea and coffee plantations, devastating lumbering operations combined with systematic poisoning of non-preferred trees, including the food trees of Chimpanzees and other monkeys and some birds, means that soon many of the kinds of animals that we collected will be found only in the forests of the Congo. How long before the ROM can mount an expedition to that troubled country?



Terence Michael Shortt has been widely published as an author, co-author and illustrator. Mr. Shortt was born in Winnipeg in 1910. A graduate of the Winnipeg School of Art, he joined the ROM in 1930, and has been Chief of Life Sciences Display since 1948. "Two Africas" is an account of the most recent of his more than two dozen collecting expeditions during his Museum career.



## The Diorama

Dioramas, in the modern sense, are exhibits in which a life-like three-dimensional foreground is set against a curved painted or photographic background and the two blended together under controlled lighting to give the illusion of an actual scene.

Dioramas have a long history. While early kinds of dioramas were constructed for use in peep shows and similar entertainments, credit for their development is generally given to Louis Jacques Mande Daguerre. Daguerre exhibited dioramas in Paris and London as early as 1822. In 1839 his finest dioramas were destroyed by fire but in the meantime he had been experimenting with the *camera lucida* and the *camera obscura* in an attempt to achieve new background effects and in that same year perfected the daguerreotype—perhaps the greatest single advance in the development of photography. Absorbed by this new interest he abandoned diorama construction.

The diorama truly became an art form in the magnificent series created by Carl Akeley for African Hall in the American Museum of Natural History, New York. The series of 28 dioramas, the result of more than 20 years' work, was put on public display in 1936. Akeley also was an inventor. From his experiments with compressed air spray in manikin-making, he developed the cement gun for spraying liquid concrete; from his lighting experiments he invented the rotary control of searchlights, and from his desire to record in motion pictures the animal life of Africa, he devised the Akeley camera, the prototype of modern, portable, high-speed movie cameras. And it was Akeley who changed large mammal taxidermy from "stuffing" to applied sculpture.

The ROM's first dioramas, six small exhibits depicting the fauna and flora of Muskoka district, were installed by Lester Lynne Snyder in 1919, five years after the building's opening. In 1920 Snyder produced six more. By 1923 he had added a

companion series of 12 showing characteristic animals and plants of Point Pelee on Lake Erie. Taxidermy, background painting and accessories all were done by Mr. Snyder. These exhibits lasted nearly 50 years before the ravages of time necessitated their removal.

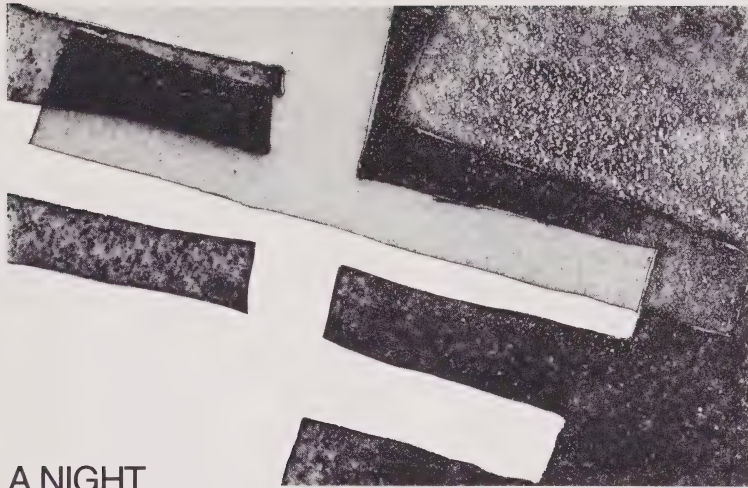
The ROM's first large diorama was built by Mr. Snyder in 1925 and portrayed Black Bears in Algonquin Park. A noted Toronto artist, Roy Fisher, was commissioned to paint the background. Originally in a square box-like showcase, the exhibit was enlarged and equipped with a curved background when the then Royal Ontario Museum of Zoology moved from the old building to the third floor of the Queen's Park wing. This exhibit still stands.

In 1935, Dr. J. B. O'Brien, ROM board chairman, formally opened the dramatic Passenger Pigeon diorama, recreating the migratory flight of this extinct bird as it progressed through the Credit Forks region of Peel county on an April day in the 1880s. The diorama was prepared by Snyder, Fisher and the writer.

In 1935 Takatsuna, Bailey, Kurata and E. B. Shelley Logier prepared two very different dioramas. Called "Life in Still Water" and "Life in Running Water," they were among the first truly ecological groups to be created anywhere. Other dioramas followed. In 1953-4 four underwater scenes were prepared for the Gallery of Fishes and in 1958 a Trinidad Rain Forest—Bushmaster exhibit was installed in the Gallery of Reptiles. This was followed by a Florida Everglades—Alligator group in 1962.

The present series was begun in 1963 at the instigation of Dr. W. E. Swinton, then director of the ROM. Already in place are dioramas (or biogroups, a more accurate term for dioramas dealing with life science subjects) of the Canadian Arctic, an Indian monsoon forest (described in *Charge to Expenses: One Tree Watcher*, ROTUNDA, Spring 1968), and the Galapagos Islands.

T. M. Shortt



## A NIGHT IN THE ROYAL ONTARIO MUSEUM

by Margaret Atwood

Who locked me

into this crazed man-made  
stone brain

where the weathered  
totempole jabs a blunt  
finger at the byzantine  
mosaic dome

Under that ornate  
golden cranium I wander  
among fragments of gods, tarnished  
coins, embalmed gestures  
chronologically arranged,  
looking for the EXIT sign

but in spite of the diagrams  
at every corner, labelled  
in red: YOU ARE HERE  
the labyrinth holds me,

turning me around  
the cafeteria, the washrooms,  
a spiral through marble  
Greece and Rome, the bronze  
horses of China

then past the carved masks, wood and fur  
to where 5 plaster Indians  
in a glass case  
squat near a dusty fire

and further, confronting me  
with a skeleton child, preserved  
in the desert air, curled  
beside a clay pot and a few beads.

I say I am far  
enough, stop here please  
no more

but the perverse museum, corridor  
by corridor, an idiot  
voice jogged by a pushed  
button, repeats its memories

and I am dragged to the mind's  
deadend, the roar of the bone-  
yard, I am lost  
among the mastodons  
and beyond: a fossil  
shell, then

samples of rocks  
and minerals, even the thundering  
tusks dwindling to pin-  
points in the stellar  
fluorescent-lighted  
wastes of geology

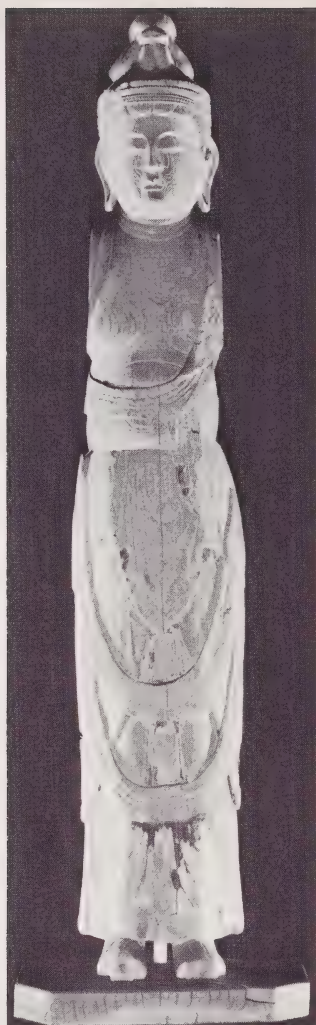
Reprinted by permission from *The Animals in that Country* by Margaret Atwood;  
Oxford University Press, 1968.



## The Growing Collections

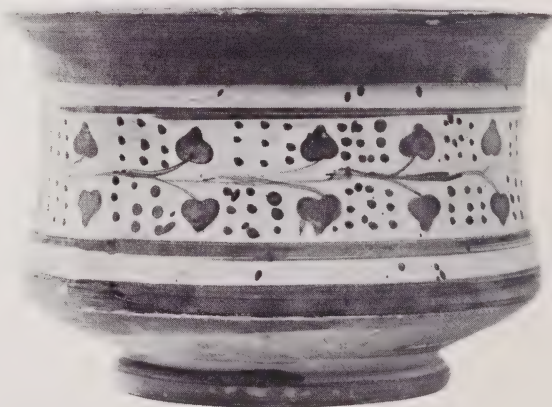
The Greek and Roman Department acquired two pieces of Greek pottery at Parke-Bernet Galleries in New York last January. Shown here is a bowl of the Cabiran style popular in Boeotia for a rather brief period encompassing the second half of the 5th and the early 4th century B.C. The deep bowl with concave walls and a carinated lower part is decorated round the body with the typical motif of an ivy wreath with berries. Two holes pierced near the rim were used for suspending and storing the bowl when not in use. The bowl is the second piece in our collection of this comparatively rare ware, the other being a large drinking cup (ROTUNDA, Fall, 1968) decorated with dancing figures and donated by the Group of One Hundred.

The other acquisition is an elegant drinking cup with applied relief decoration of ivy festoons. An excellent and complete specimen of the Pergamene ware of the Hellenistic period of about 120-80 B.C., the cup is the only representative of that ware in our collections.



Thanks to the Life Members of the ROM, the Far Eastern Department has acquired an important Japanese sculpture, a bodhisattva of the later Fujiwara period (12th century). Objects of such antiquity and quality are usually beyond the Museum's purchase funds. The bodhisattva fills a gap between two works long familiar to habitués of our galleries: the 10th century Jizō and the 13th century Miroku. Its addition permits us to trace the stylistic and technical changes developing from Japanese adaptation of Asian mainland influences to native tastes.

The bodhisattva is impressive in size, being 4 feet 9 $\frac{3}{8}$  inches tall. Its effect is at once reserved and yet artistically self-conscious. Its symmetry and balance maintain a mood of calmness and detachment; at the same time it is carved with a deliberate emphasis upon technique. Two thin shells of wood are combined, with details in shallow and apparently unrefined cuts, to call attention to its creation by human artifice. In this manner the sculpture presents a sense of tension between its other-worldly evocations as religious art and its immediate existence as man's work. This ambiguity is one of Japan's chief contributions to aesthetic awareness. From this point of view, the bodhisattva can be related to our 10th century Shinto figure in its "nostalgia for the primitive," although its general features recollect classical Chinese T'ang Dynasty prototypes.





The lively encounter between Indians and a treed bear shown here is one of four pen-and-wash sketches by Sir Richard George Augustus Levinge. They and several other interesting purchases were made by the Canadiana Department at the recent Sotheby auctions in Toronto. Levinge is considered one of the most accomplished soldier-artists to visit this country. He served in Upper and Lower Canada with the 43rd Regiment from 1835 to 1840, and later (1846) wrote *Echoes from the Backwoods* about his Canadian experiences.

Another important purchase was a large drawing, "Indian Chiefs Welcoming the Duke and Duchess of Cornwall at the Pow-Wow, Shaganappie — Calgary, September 28, 1901." The future George V toured the Commonwealth in that year, and Melton Prior (1845-1910) was one of the reporter-artists who covered his trip. Prior, who worked for the *Illustrated London News*, travelled extensively in both eastern and western Canada, making pencil sketches as he wrote. He died leaving no direct descendants, and much of his work has disappeared.

A rare lithographic view of Fergus, Upper Canada, printed in Edinburgh about 1835, also came to light in the Sotheby sale and was generously presented to the Canadiana Department by Mr. John M. Rogers of Toronto.



Among important pieces added to Canadiana's coins and tokens collection was a very rare North West Company token dated 1820. It was good for a beaver skin, and used in trade by the North West Company, a Montreal fur-trading company which operated between 1784 and 1821.



Several important gifts have recently enriched the collections of the Department of Ethnology.

One large and 13 miniature Hopi Kachina dolls, the gift of Mrs. A. S. Morrison, are a valuable addition to the already existing collections of kachinas. Such dolls were used in the religious training of children in the

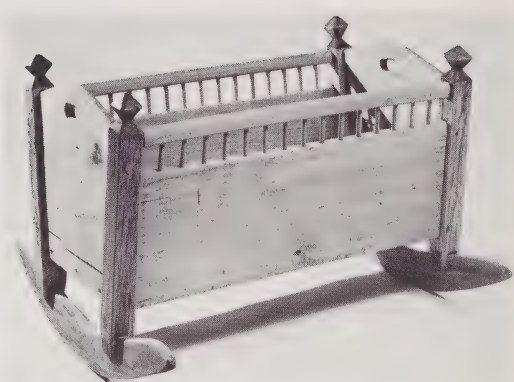


Pueblo villages of Arizona and New Mexico.

Mr. V. A. Richter presented the department with items he collected from the Tuareg tribe in the Sudan. Included in the gift are a beautiful decorated leather bag used for storing gold coin and jewellery, a carved gourd rattle, and a multi-coloured woven basket. A large tapa cloth, 13 feet by 13 feet, was the gift of Miss F. E. M. Johnston. It was used by the natives in the Fiji islands as a marriage canopy. The cloth is decorated with floral and geometric designs in black pigment made from the soot obtained by burning kauri gum, and a reddish-brown pigment obtained from the juice of the mangrove.



The first acquisition through donations received at the ROM Baroque Ball, in May, with the generous help of Mr. and Mrs. John Schorscher, is a fine oil painting, *St. Joseph and the Christ Child*. Unsigned, but in style, iconography and technique Italian Baroque work of the second half of the 17th century, the painting is attributed to Giovanni Batista Gaulli, called Baciccio (1639-1709). All the preserved masterpieces of Gaulli, even his sketches, show a brisk realism, a living motion of the brush, and the richness of colour evident in this painting.



Other purchases from Sotheby's included a proof-state mezzotint of the Earl of Durham, after the painting by Sir Thomas Lawrence; an 1896 watercolour showing a lime kiln at Rockwood, Ontario; a Prince Edward Island half penny issued about 1840; a "Vexator Canadensis" token, perhaps issued in the 1830s and referring to the British Government as the tormentor of Canada; a pine rocker cradle with rails and spindles, mid-19th century, a bird's-eye maple dressing chest, two glazed earthenware basins, and a figured maple mortar and pestle of the same period.

The Textiles Department has received part of a set of bed curtains, polychrome woodblock printed cotton, the gift of Susan Carrier Meek. Many printed cottons were, like this one of the 1780s, exported from England to the United States and used for house furnishings.

The Department of Mineralogy reports that 257 specimens have been registered into the collection since February 1969. Most important is the acquisition of two newly discovered minerals: *wickenburgite*, named for its locality at Wickenburg, Arizona, and *weloganite*, from Montreal Island, Quebec, named for Sir William E. Logan, first Director of the Geological Survey of Canada. Some other new specimens include some small, but gemmy-red crystals of rhodonite from Australia and some bustamite crystals, also from Australia.

# ROM Publications

Can you identify a drunken lord's chair? Yen Lo Wang, a lord of Hades? A print showing members of Japan's 18th-century *demi-monde*? Art and artifacts from Neolithic times in China to the end of the Ch'ing Dynasty in 1912, as well as the arts of Japan and Korea, and of India and Southeast Asia, are shown in the ROM's 21 third-floor East Asian Galleries. A useful guide to the East Asian Galleries, with text by Doris Dohrenwend, Curatorial Assistant in the Far Eastern Department and 81 photographs by the ROM Photography Department, will appear in August. *THE EAST ASIAN GALLERIES*, 56 pages, paperbound, \$1.25.

At the recent dedication of the Chinese Fresco Gallery as the Bishop White Gallery, a colourful guide book was made available to the public. Seven colour plates show the three huge frescoes, a detail of each, and sculptures of Kuan-Yin and Ta-Shih-Chih. There are black-and-white illustrations of five other sculptures from the Chin and Yüan Dynasties. Proceeds from sales of the guide will go to the Bishop White Memorial Fund. *THE BISHOP WHITE GALLERY*, 16 pages, \$1.00.

Three Art and Archaeology Occasional Papers will be published this summer. Lisa Golombek of the ROM West Asian Department is the author of *A Timurid Shrine at Gazur Gah* (Occasional Paper 15), a study of the hazirah in Iranian architecture which relates it to the medieval history of Iran and the iconography of Islam. T. Cuyler Young, Jr., Curator of the West Asian Department, has prepared *Excavations at Godin Tepe: First Progress Report* (Occasional Paper 17), an interim report on the first two seasons' digs at an outpost of the ancient Silk Road of the Near East (ROTUNDA, Summer 1968). Occasional Paper 16, *The Pre-*

*history of Actun Balam, British Honduras*, discusses the discovery of an unusual vase, which it seems was used in Maya ceremonies, at a cave site first stumbled upon by chicle-gatherers. David M. Pendergast, the author, is Director of the ROM archaeological excavations at Altun Ha in British Honduras. *A TIMURID SHRINE AT GAZUR GAH*, ROM Art and Archaeology Occasional Paper 15, paperbound, \$6.00; *THE PREHISTORY OF ACTUN BALAM, BRITISH HONDURAS*, ROM Art and Archaeology Occasional Paper 16, paperbound, \$3.00; *EXCAVATIONS AT GODIN TEPE: FIRST PROGRESS REPORT*, ROM Art and Archaeology Occasional Paper 17, paperbound, \$3.50.

Life Sciences Contribution 74, *Contributions to the Biology of the Asian Caddisfly Family Limnocoenotridae (Trichoptera)* by Glen B. Wiggins, Curator of the Department of Entomology and Invertebrate Zoology, was published late in April (price \$1.00).

ROM Life Sciences Occasional Paper 13, *Notes on the Malaysian Fruit Bats of the Genus Dyacopterus*, by R. L. Peterson, Curator of Mammalogy is now available (price 25¢).

With the success of the first ROM CHART on Naskapi Indian designs, arrangements have been made to publish five more CHARTS on aspects of Canadian Indian life. The five will be issued at the rate of one a month, beginning in July with a CHART on Indian musical instruments. The August CHART will be on craft designs of the Cree and the three other charts, to appear in September, October and November, will be on Assiniboine designs, Indian Quill Work, and Toys and Games. Almost the entire first printing of the Naskapi CHART, 23,000 copies, already has been sold. However, the ROM Sales Desk still has some copies. The ROM CHARTS, printed in full colour, measure 37½ by 50 inches. Folded in an envelope, suitable for mailing, the CHARTS are \$3.00 each.





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